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ABSTRACT:

A desk designed to be fitted with electrical devices, such as dictating machines, typewriters, calculators, CRT terminals, has a multiple outlet (8) fixed to the inner surface (7) of a wall structure (6) at the end of the foot well (3) of the desk. The wall structure (6) can be pivoted (15) between a normal position in which it is locked upright, and an open position in which the user has access to the multiple outlet (8). <IMAGE>

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US 1786823A
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(54) A desk designed to be fitted with electrical devices

(57) A desk designed to be fitted with electrical devices, such as dictating machines, typewriters, calculators, CRT terminals, has a multiple outlet (8) fixed to the inner surface (7) of a wall structure (6) at the end of the foot well (3) of the desk. The wall structure (6) can be pivoted (15) between a normal position in which it is locked upright, and an open position in which the user has access to the multiple outlet (8).

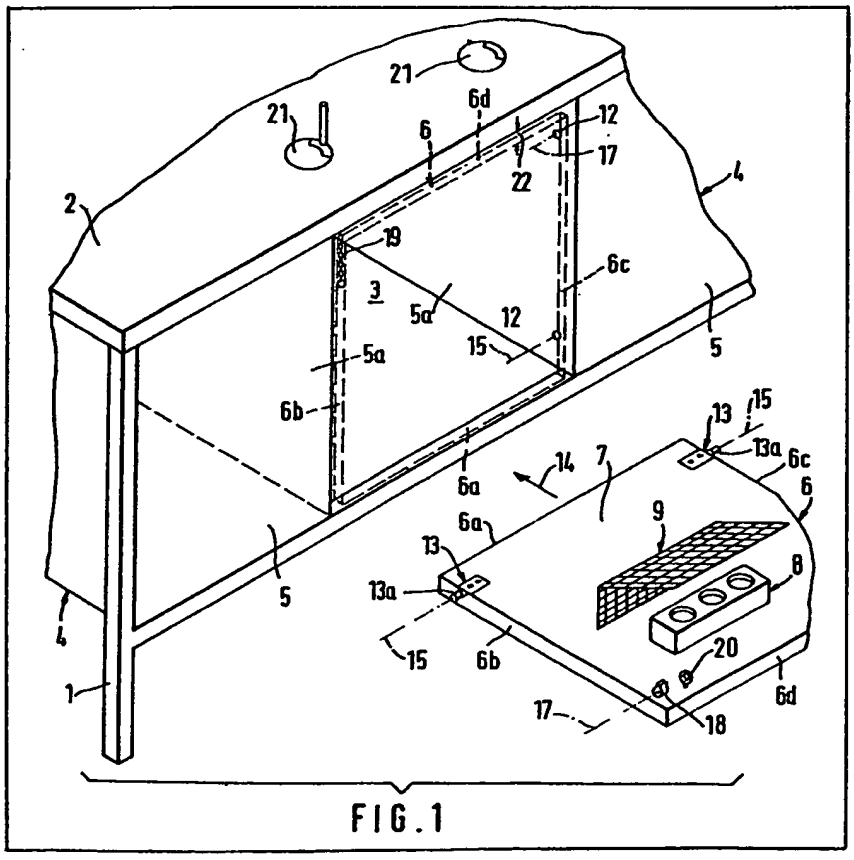

FIG.1

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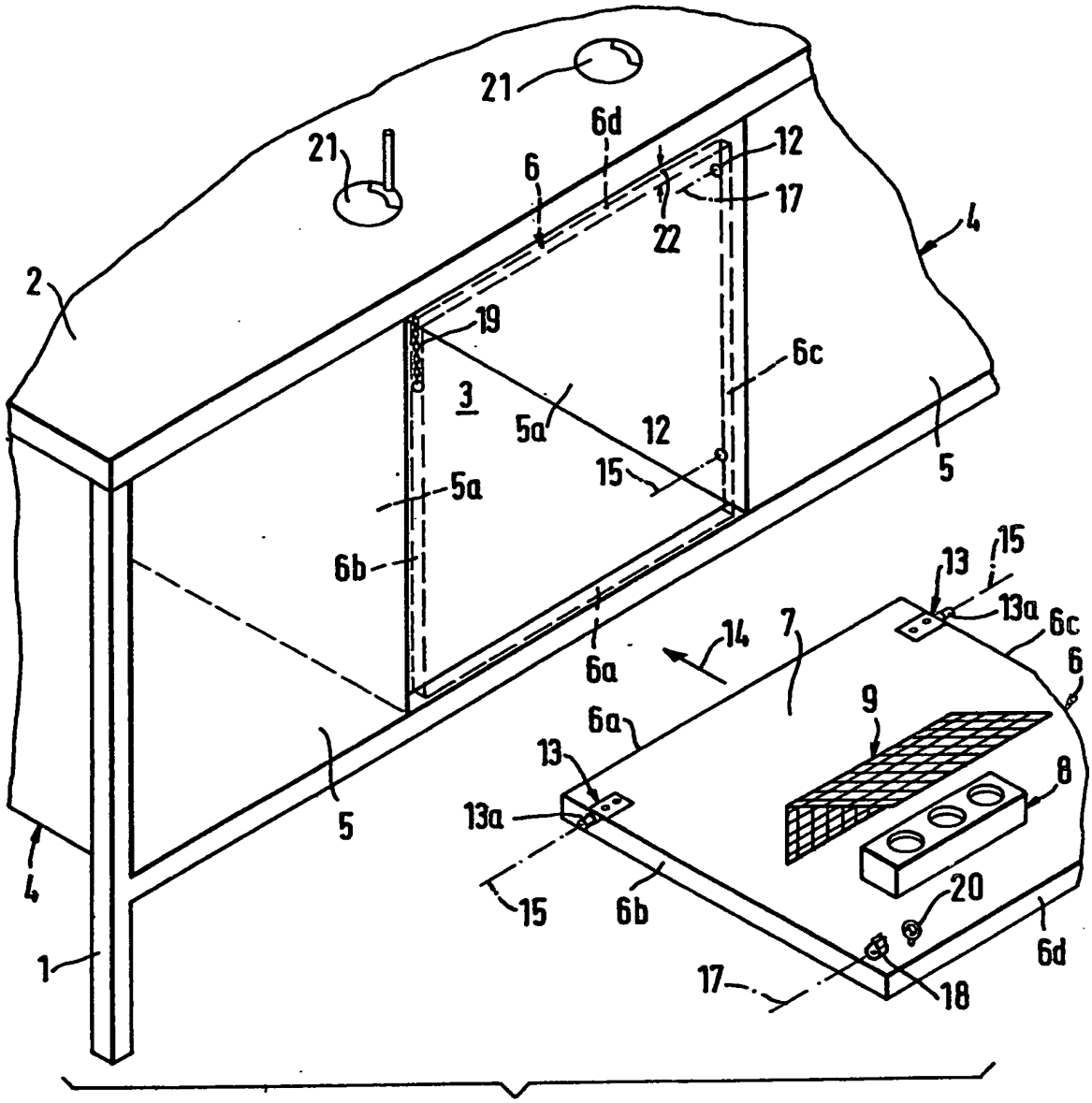
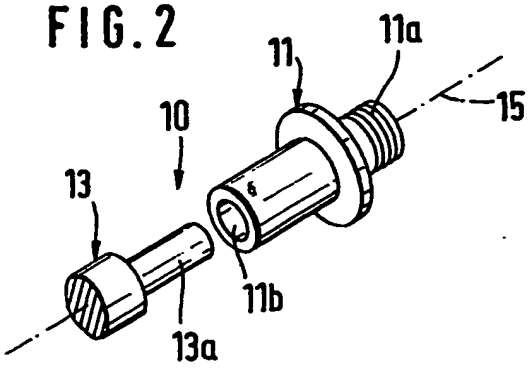


FIG.1

FIG.2



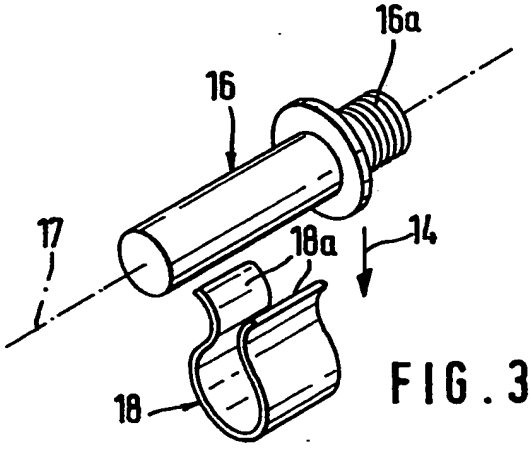


FIG.3

SPECIFICATION
A desk

The present invention is with respect to a desk designed to be fitted with electrical devices and having a wall structure limiting a well for the feet.

At the present time electrical devices are increasingly being used on office desks, such devices not only being dictating machines joined up with the mains, electrical typewriters, electrical table-top calculators and the like, but furthermore CRT's as terminals of data processing systems and other electrical or electronic devices used with other systems, which make necessary a connection with the electricity mains.

For connection of a number of such electrical devices placed on or in a desk, the flexible cables, running separately to electrical outlets near the desk, are frequently placed in the floor or on the wall. This is frequently not only responsible for an unpleasing look of the wiring, but furthermore for a tangle of wires, which may be tripped over and be the cause of accidents, even at positions some distance from the desk itself. The number of the flexible cables stretching away from the desk may naturally be decreased by using a single flexible cable coming from an outlet on the wall or the floor and running to a multiple socket system on the desk, the wires for the separate electrical devices then running out from it. Such a multiple socket system is then generally placed on the floor under the desk, something which is furthermore unpleasing to the eye and the user of the desk is less free to put his legs in different positions; furthermore, plugging up and unplugging the ends of the flexible cables is more trouble, it being necessary to put out one's hand stretching under the desk to get at the socket system. For this reason, some desk users may make their own special wiring systems by screwing a multiple outlet somewhere on the desk so that cables are no longer trained over the floor. However, even in addition to the amount of work for screwing the connection system on the desk, frequently without having the right tools and in some hard-to-get-at position under the desk, it is still not possible for the user to put his legs into different positions as needed for full comfort and furthermore the hanging wires are still unpleasing to the eye, because such hanging wires or cables will still be seen from the outside in the well of the desk for the feet. Joining up and unjoining the separate cable connections on the multiple socket system fixed to the lower wall structure of the desk is quite as hard as when the socket system is on the floor.

In view of these shortcomings, one purpose of the present invention is that of designing a desk which may be fitted with electrical devices, in the case of which the joining up and putting into position of cables for electronic or electrical devices may be undertaken by the user simply and readily.

For effecting this purpose and further purposes in the present invention a desk designed to be fitted with electrical devices has a wall structure limiting a well for the desk user's feet, characterized in that

(a) there is an electrical outlet fixed to the wall structure on its side facing the well for the user's feet, and

(b) the wall structure is able to be moved between a normal position in which it is locked and which is in line with the rest of the outside of the desk, and an opened position producing an opening which makes it possible for the electrical outlet to be got at from the outside of the desk.

Because the wall structure, on which an electrical outlet is fixed in a lined-up, regular position by the maker of the desk, may be moved, and more specially turned or tilted, out of its normal position in which it is part of the outer facing of the desk, into an open position, in which the connection or outlet may readily be got at from outside the desk, joining up flexible cables does not make it necessary for the desk user to get down onto the floor under the desk; in point of fact, all that is necessary is for the user, without any less comfort, to put the wall structure into the open position for making the necessary connections, it then being pushed back into its normal position when the connection has been made. In this normal position, the electrical outlet, which is fixed to the side of the wall structure turned towards the well for the desk user's feet, may no longer be seen and furthermore does not get in the way of the user's legs. By using a support which, as well, is overlong cables, as for example in the form of a basket, it is furthermore possible, even in bad cases for the overlong pieces of cable to be put out of the way and not kept hanging in the well where they are unpleasing to the eye. As a wall structure for supporting the outlet the back wall, which may be seen and is normally placed between the back walls of the lower locker, may be used, it walling in the foot well from the back. It is furthermore specially simple for desks in existence to be changed on these lines so that they are designed as in the present invention, it only being necessary for the wall structure having the outlet to be put in place in the case of a desk whose well has so far been open, or in the case of a shut-in well for the wall structure to be used in place of the wall structure so far used, such a change-over being quite simple, more specially because the side walls, next to the well, of the lower lockers frequently have fixing holes which are produced by the maker of the desk and which in the present case may be used for a hinge system for the wall structure and for a spring lock therefor.

Further useful developments of the invention will be seen in the dependent claims.

In addition, further details and useful effects of the invention will become clear on reading the account of one working example of the invention using the accompanying figures.

Figure 1 is a general view of the back of a desk of the present invention, the wall structure or board forming the back wall of the feet well and

having an electrical multiple socket, is to be seen in its normal position in broken lines and in its pulled-out position in full lines.

Figure 2 is a perspective view of the locking bolt between the wall structure and the rest of the desk.

Figure 3 is a view, on the same lines as figure 2, to make clear the spring lock for locking the wall board in position in the rest of the desk.

The desk, of which only a part will be seen in figure 1 has normal support legs 1, a desk top 2 and, under the desk top 2, lower lockers 4 on the two sides of the well 3, the lockers having back walls 5 on the side of the desk opposite to the side on which the desk user is seated, that is to say on the "visitors" side of the desk. The back end of foot well 3 is shut off as will be seen in figure 1 by a wall board 6, to be seen in broken lines in this figure, having the function of a facing panel at the end of the well 3 and in line with the back walls 5 of the lockers 4 next to it; in the normal position, marked in broken lines, the wall board 6 is in line with and part of the side of the desk facing the same direction as the desk user.

As will be seen from the view in figure 1 of the board 6 after being unjoined from the rest of the desk, the side 7 of this board turned into well 3 has an electrical multiple outlet or distribution system 8 as widely used, it being fixed, for example, by screws. Multiple outlet 8 naturally has a supply flexible cable joined to it, although it is not to be seen in the figure, such cable running to an outlet in the wall or the floor. Multiple outlet 8 can, in the present working example, be used for joining up three flexible cables for electrical devices used with the desk. The multiple outlet 8 is fixed on a part of board 6 which is at the top of the same when the board is in its normal position. Under multiple outlet 8 there is a support basket 9 for lengths of flexible cable which are not needed, such basket being fixed, like the multiple outlet 8, to board 6 by the maker of the desk.

The wall board 6 is joined to the rest of the desk, as will be seen in more detail in figure 2, by a connection in the form of a bolt connection 10, joining it with the next part 5a of the side walls of the lower lockers 4, this making it possible for the board to be turned or tilted. For this purpose near the edge 6a, which is the lower edge in the normal position of the board 6, the two opposite side edges 6b and 6c have bolts 13 fixed thereto, which may, for example, be nailed in position. In figure 2 it is only possible to see a front end of such a bolt with a turnpin 13a or bolt end. In holes 12, produced in all desks by the maker, in the side walls 5a of the lower lockers 4 next to board 6, bearing sleeves 11 are fixed, which have end screwthreads 11a for fixing in holes 12. The wall board 6 may be placed so that its lower edge 6a is moved in the direction marked by arrow 14 in figure 1 into the lower part of well 3, bolts 13 being pulled back till the bearing sleeves 11 are in line with the turnpins 13a of bolts 13 and such turnpins may be slipped into the sleeves for forming a turning connection or sort of hinge.

Then the wall board 6 is turningly supported on the rest of the desk between the lower lockers 4 in the desk for turning about an axis 15. Turning or tilting motion is possible out of the folded down position through 90° into the normal position to be seen marked in figure 1 in broken lines, in which the board 6 is fully lined up with and part of the back side of the desk, it being in line for example with the back walls 5 of the lower lockers 4.

For locking wall board 6 in this position so that there is no danger of it being folded downwards without this being desired and no longer being lined up with the rest of the back side of the desk, near the side edges 6b and 6c of the board 6 at the ends of such edges near the edge 6d, which is at the top in the normal position of the board, spring locks in the form of pins 16 are used. In the design to be seen in figure 3 such pins 16 have, for example, a threaded end 16a by which they are fixed in holes 12 in the wall 5a of each lower locker 4, figure 1 only having the right hand hole 12, into which pin 16 (figure 3) is screwed. It is best for the pins 16 on the two sides of the board 6 to be in line with each other and to be on an axis 17 parallel to the axis 15 of turning of the board. On the side of the board 6 locking springs 18 are placed for springingly taking up pins 16 and locking them in the normal position of board 6. Locking springs 18 are fixed to the side 7 of board 6. In the example of figure 3 such locking springs may be in the form of spring clips with sloping ends 18a against which the pin 16 is run as it is moved into the clip. The locking springs 18 or clips are used not only as stops for ending the turning or folding motion of the wall board 6, when it gets as far as its normal position, but furthermore for spring locking the board 6 in its normal position.

For this reason, the board 6 may be folded down out of its normal position, in which the pins 16 are springingly gripped by locking springs 18, and, for this reason, are kept in position, the locking springs 18 being bent and the connection between the locking springs 18 and the pins 16 on the back board of the desk, about the axis 15 of turning so that it is then possible to get at the multiple outlet 8 in the way to be seen in figure 1 even from the outside of the desk. For this reason, a folding motion through as much as 90° is generally not necessary and, in fact, all that is needed is for the board 6 to be turned out of the normal position through an angle of, for example, the order of 30° so that the multiple outlet 8 next near the top edge 6d, may be got at. In order to keep the board in this open or folded-back position, a tie in the form of a support chain 19 is able to be joined up between the desk, in the case of the present working example between the lower side of the table-top 2 and an eye-bolt 20 fixed at the top of the board 6 at some distance from the turning axis 15. The length of the support chain 19 will be such that, on folding back the board 6 out of the normal position, the support chain 19 will be pulled tight when the board has been folded back through the desired angle for the

desk user to be able to see to the electrical connections, support chain 19 being used at the same time as a way of stopping damage, if for example, the board 6 were to be kicked by chance and pushed out of the locked position, in which pins 16 are locked by locking springs 18, and then folded forwards; putting it somewhat differently, because the possible angle of folding of the board 6 is limited by the support chain 19, the board 6 will not be moved so quickly by the effects of gravity uncontrolledly that damage is to be feared.

For producing a cable connection between electrical devices on the table-top 2 and the multiple outlet 8, it is possible to have cable fairways in the table-top 2, which are produced by the maker and may, if desired, be shut. If such cable fairways or openings 21 are not present, for example in the case of a desk which is only fitted with a board 6 with multiple outlet 8 some time after it has been made, by having the right distance between the axis 15 of turning and the top edge 6d of board 6, it is possible to make certain that between the top edge 6d and board 6 and the part of the rest of the desk next thereto, for example the lower side of the table-top 2, there will still be a narrow space 22 through which the flexible cables from the multiple outlet 8 may be trained along the side 7, turned into the well 3, of the wall board 6 to the outer side of the desk and then onto the table-top 2. If desired, it is naturally furthermore possible for such flexible cables to be trained from the multiple outlet 8 through the ready-made fairways and into the lower lockers 4, for example for connection with a dictating machine housed in the locker.

When the board 6 has been fixed in position in the way noted and folded back into its normal position, marked in broken lines in figure 1, on the rest of the desk, it is then possible for the desk user to make use of a grip, not marked in detail, on the board 6 for folding back the board into the position for making electrical connections, the desk user then being at the back side of the desk. In this position of the board all desired flexible cable connections between the multiple outlet 8 and different electrical devices on the desk may be produced and unnecessarily long cables may be placed on or in support basket 9. Next wall board 6 is simply folded back into the normal position till pins 16 are springingly locked in springs 18. After joining up the flexible supply cable of the multiple outlet 8 with a mains outlet, all electrical devices joined up with multiple outlet 8 will be supplied with current. Furthermore changes in the connections, for example on changing over devices used on the desk, may be made without any trouble once the board 6 has been folded back. Even in troublesome cases, there will be nothing getting in the way of motion of the desk user's legs because of hanging down cables, this being the case because unnecessary lengths of cable are put in or fixed to the support basket 9 so that they may not be seen from the outside. Support basket 9 and the multiple outlet 8 placed thereover do not get in the way of the desk user's moving his legs because they are placed in the corner space between the desk top and the top of board 6 in foot well 3. It is naturally the case that the support basket 9 and the multiple outlet 8 may not be seen from the outside when the board 6 is folded back into its normal or use position.

As will have been seen from the account given so far, many different changes may be made in the working example given in the figures without giving up the general teaching of the invention. For example, for the system for supporting the board 6 for turning about axis 15, it is naturally possible to make use of any other different hinge or bearing design as used for furniture. However, be this as it may, the bolt connection 10 or some design like it and the fact that the locking bolt 13 may be moved horizontally, make it possible for the board 6 to be simply put in place with good effect, and then on moving the turnpins 13a of the bolts 13 into the holes 11b of the bearing sleeves 11 a strong locking connection with a hinge function is produced. Furthermore, the springing lock at the part of board 6 which is at the top in the normal position of the board, may be different in design, and more specially the pins or pin 16 may be placed on the board 6 and the locking spring or springs 18 may be fixed to the rest of the desk and not on the board. The important point in this respect is only that the top part of board 6 is spring-lockingly be kept in the normal position to be seen, in which respect, however, in some special cases, as for example if there is a chance of the user's feet kicking against the side 7 turned towards the well 3, of the board 6 so that such a spring locking system might be undone, it will be possible to have a positive locking system able to be changed over from a locking and an undone position. Such a system might be designed to be worked by a handle on the outside of the desk when the desk user is in front of the back wall of the same. Furthermore, in place of the support chain 19 it would, generally speaking, be possible to have any other part able to be used for the same purpose, that is to say making possible a folding-open motion of the board 6 through a certain angle and then, by taking up the pulling forces produced, stopping any further turning open. Lastly, the board 6 with the multiple outlet 8 does not necessarily have to be placed in position as a back wall of well 3 which may be seen from the outside and, in fact, in cases where there is no lower locker 4 for example, it might be placed as a side screen part of the desk or it might take the form of a back wall 5 or side wall 5a of a lower locker 4. Furthermore, the wall board 6 might be fixed on side support tubes in the right position (in cases which there were only one or no side locker 4), such tubes being part of a steel tube frame, the board 6 then having the function of a wall structure walling off the foot well 3 and able to be seen from the outside, this being more specially of value for the user of the desk in cases in which the desk is supplied with only one lower locker or cupboard 4. The important point in this respect is only that the side 7, on which the electrical

multiple outlet 8 is fixed, of board 6 has to be an inner side, that is to say facing towards the well 3 so that in the normal or resting position of board 6, it may be moved out of line with the rest of the outer face of the desk into a position for making changes in the electrical connections, the multiple outlet 8 being simple to get at in this position. Such motion does not necessarily have to be a folding or turning motion, although, as a general rule, this is best from the design point of view. In fact, parallel motion of the board 6 might be possible for example. Such parallel motion comes into question when the board 6 takes the form of a cover or screen of a part of the desk which is able to be moved backwards and forwards, so that for such parallel motion no further parts of the design are necessary, such parts being generally more complex in design than the parts of a folding door system.

The outlet 8 does not necessarily have to be a multiple outlet as in the figures of normal design, and in fact all other types of such electric or electronic outlets 8 or connection systems are possible, which make possible a connection between a wire coming in from the outside to the desk and electrical or electronic devices placed on or in the desk, as for example a modem for data transmission or the like.

CLAIMS

1. A desk designed to be fitted with electrical devices and having a wall structure limiting a well for the user's legs and feet, characterized in that

(a) there is an electrical outlet fixed to the wall structure on its side facing said well and

(b) the wall structure is able to be moved between a normal position in which it is locked and which is in line with the rest of the outside of the desk, and an opened position producing an opening which makes it possible for the electrical outlet to be got at from the outside of the desk.

2. A desk as claimed in claim 1, characterized in that the wall structure may be turningly moved about an axis at an edge which is at the lower end of the wall structure in its normal position, the axis being parallel to this edge.

3. A desk as claimed in claim 2, characterized in that for turningly supporting the wall structure there is, on each side of the board, a bolt connection which is coaxial to the axis of turning.

4. A desk as claimed in claim 3, characterized in that each bolt connection has a bolt placed in or at the side edges of the wall structure, turnpins of the bolts pointing in opposite directions outwards.

5. A desk as claimed in claim 3 or claim 4, characterized by bearing sleeves which are hollow at least at their ends for taking up, in each case, one turnpin of the bolt fixed to the desk.

6. A desk as claimed in claim 5, characterized in that the bearing sleeves are placed in ready-made holes in side walls of nearby lower lockers.

7. A desk as claimed in any one of claims 1 to 6, characterized in that at the edge, which is at the top of the wall structure in its normal position, on the one hand and on bearing part fixed to the desk on the other, there are spring-acting locking parts and further locking parts for use therewith for keeping the wall structure in its normal position.

8. A desk as claimed in claim 7, characterized in that as spring-locking parts and further parts for use therewith there is at least one pin and a locking spring for gripping round the pin in the normal position springingly.

9. A desk as claimed in claim 8, characterized in that said pin is parallel to the axis.

10. A desk as claimed in claim 7, characterized in that, in each case, one pin is placed near each side of the wall structure when it is in its normal position.

11. A desk as claimed in claim 10, characterized in that said pin is fixed in a ready-made hole in the wall, next thereto, of the locker in question.

12. A desk as claimed in any one of claims 1 to 11, characterized in that for supporting the wall structure in its open position and changing the electrical connections, at least one tie is fixed running from a support part fixed to the desk and a part of the wall structure at some distance from the axis.

13. A desk as claimed in claim 12, characterized in that said tie is a support chain.

14. A desk as claimed in any one of claims 1 to 13, characterized in that the table-top of the desk has ready-made openings with doors for shutting them, for the purpose of threading through flexible cables upwards to positions on top of the table-top.

15. A desk as claimed in any one of claims 1 to 14, characterized in that between the edge, which is at the top in the normal position, of the wall structure and the next part of the desk, that is to say of the desk top there is a narrow opening for threading through electrical flexible cables.

16. A desk as claimed in any one of claims 1 to 15, characterized in that on the wall structure there is a support part such as a basket for lengths of cable which are not needed.

17. A desk as claimed in any one of claims 1 to 16, characterized in that the wall structure has the function of covering up the well for the desk user's feet at its back end.

18. A desk as claimed in any one of claims 1 to 17, characterized in that said wall structure is in line with back walls of lower lockers.

19. A desk as claimed in claim 1, substantially described in the specification with reference to and as illustrated in the drawing of the specification.

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